REMARKS

No claims are being cancelled. Claims 17-19 are being added. Claims 1 and 10 are being amended. Upon entry of this amendment claims 1-19 will be pending in the application.

The amendment to claim 1 is supported by the specification and as filed claim 10.

New claim 17 is supported by as filed claim 10.

New claims 18 and 19 are supported by the specification at page 5, lines 19-24.

The rejection of claims 1-5 and 10-12 under 35 U.S.C. §103(a).

Claims 1-5 and 10-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,112,657 to Melber in view of U.S. Patent No. 3,230,184 to Alford et al. More particularly, the Office communication asserts in one part: It would have been obvious . . . to incorporate microspheres into thermoset compositions in order to obtain a lightweight stone product."

- **The Office communication admits that claims 10-12 are patentably distinct from the Melber reference.**

Pending claim 10 recites in one pertinent part: "adding a curing agent to a thermoset resin to form a catalyzed resin mixture; . . .slowly mixing the microspheres and the catalyzed resin mixture to form a catalyzed base material . . .; adding additives to the catalyzed base material; . . ." Claim 10 requires the additives to be added after the catalyst.

The present Office communication on page 2 admits that "adding the catalyst after mixing the other additives to the resin constitutes 'another and materially different process'". The present Office communication goes on to admit that adding catalyst to the resin after the additives "represents a process which is patentably distinguishable from the claimed process steps."

The Melber reference at column 16, lines 54-63 discloses the following, and only, process for preparing the material therein:

> The appropriate measure of resin is charged to a mixing vessel. While mixing, 3 parts by volume of the blend of composite microspheres and calcium carbonate are added gradually for each part by volume of the vinylester resin polymer. Mixing is continued until a substantially uniform blend of the materials is observed. A free radical catalyst curing system for the vinylester resin polymer is added slowly while the mixing is continued until the catalyst is also uniformly mixed throughout the mixture.

The Melber reference explicitly teaches that 1) resin is charged to a mixing vessel, 2) additives (microspheres and calcium carbonate) are added to the resin, 3) mixing is continued "until a substantially uniform blend of materials is observed" and 4) catalyst is added to the uniformly blended mixture of resin, microspheres and additives. Melber only discloses adding additives before the catalyst.

The Office communication admits that adding catalyst before additives (as in pending claim 10) is a "materially different process" that is "patentably distinguishable" from adding catalyst after additives (as in the cited Melber reference). Pending claim 10, and claims dependent therefrom, are not obvious over the Melber reference and are patentable for at least this reason.

- **The proposed combination of Melber in view of Alford does not teach or suggest all of the claim features.**

As stated in MPEP §2143, to establish a *prima facie* case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

As filed claim 10 requires that "the additive is non-homogeneously distributed [in the catalyzed artificial stone mixture]." Amended claim 1 requires that the at least one member be non-homogeneously distributed in the resin.

The Melber reference at column 16, lines 54-63 discloses the following, and only, process for preparing the material therein:

> The appropriate measure of resin is charged to a mixing vessel. While mixing, 3 parts by volume of the blend of composite microspheres and calcium carbonate are added gradually for each part by volume of the vinylester resin polymer. Mixing is continued until a substantially uniform blend of the materials is observed. A free radical catalyst curing system for the vinylester resin polymer is added slowly while the mixing is continued until the catalyst is also uniformly mixed throughout the mixture.

It does not appear reasonably possible to mix the resin and additives "until a substantially uniform blend" is obtained, than add catalyst and mix again until "the catalyst is also uniformly mixed throughout the mixture" and still obtain a product that has additives non-homogeneously distributed in the catalyzed resin. If the Examiner continues to apply the Melber reference Applicant respectfully asks for an explanation of how non-homogeneously distributed additives can be obtained given the requirement that the mixture be mixed uniformly not once but twice.

The Alford reference does not teach or suggest manufacture of artificial stone products or additives for use in making artificial stone products. The Alford reference is directed to manufacture and use of glass microspheres in resin compositions which are useful in aerodynamics applications. See column 1, lines 29-33. In the Alford reference "the hollow glass spheres replace all or part of the bulk fillers conventionally employed." See column 6, lines 63-65. Examples 1-7 are stated to show the improvements in cured product properties achieved by replacing bulk fillers with hollow glass microspheres. The Alford reference does NOT teach or suggest that any of the materials are non-homogeneously distributed in the resin. In fact, the Alford reference is directed to improvement of cured product properties. Properties of the cured product will be detrimentally influenced by non-homogeneous distributions of materials within the resin matrix. Logically, the Alford reference must homogeneously distribute all of

the materials in the resin matrix to achieve the asserted superior properties throughout that matrix. The Alford reference does not teach or suggest non-homogeneously distributing materials within the resin matrix.

Claims 1-5 and 10-12 are not obvious over the Melber and Alford references, singly or combined, and are patentable for at least this reason.

- **Claims 5 and 10-12 are patentable for additional reasons.**

The Office communication on page 4 asserts (with original emphasis removed and new bolding added):

> Regarding claims 5 and 10, the viscosity of the catalyzed base material is a product-by-process limitation and is not further limiting in as so far as the structure of the product is concerned. '[E]even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. **If the product in a product-by-process claim is the same** or obvious from **a product of the prior art**, the claim is unpatentable even though the prior product was made by a different process.

As discussed above the Melber and Alford references do not teach or suggest non-homogeneous distribution of additives. Thus, the claimed product is NOT the product of the prior art for at least this reason.

As discussed above pending claim 10 (which adds catalyst before additives) is admitted by the Office communication to be a "materially different process" that is "patentably distinguishable" from the prior art process (adding catalyst after additives). Thus, the claimed product is NOT the product of the prior art for at least this reason.

Applicant's specification at page 6, lines 2-7 states:

> Experience has shown that base materials having a viscosity substantially lower than about 950 x 10^6 to about 1590 x 10^6 cps are not able to achieve a suitable natural stone appearance. This is due to the fact that lower viscosity materials tend to more completely homogenize additives resulting in an unnatural appearance. Higher viscosities tend to provide a catalyzed stone mixture that crumbles and is difficult or impossible to form into an artificial stone surface.

Thus Applicant's specification explicitly indicates that in the embodiments of claims 5 and 10 base materials of about 950 x 10^6 to about 1590 x 10^6 cps are important to achieve an artificial stone product with the claimed features. Thus, the claimed product is NOT the product of the prior art unless the prior art base material viscosity was within the recited range.

The claimed product is NOT the product of the prior art. Pending claims 5 and 10-12 are not obvious over the Melber and Alford references, singly or combined, and are patentable for at least this reason.

- **Claims 10-12 are patentable for additional reasons.**

Claim 10 recites in one pertinent part: "lightly mixing the additive and catalyzed base material to form a catalyzed artificial stone mixture . . ." Applicant's specification discusses the meaning of "lightly mixing" at page 6, lines 10-31. That section explicitly states: "This working or mixing step is surprisingly important . . . To this end, it is important that the additives are not smeared or homogenized completely into the catalyzed base mixture. For this reason, an acceptable natural stone product cannot be achieved if the base material and additives are mixed using conventional methods such as stirring, shaking, paddle mixer, rotary mixer or cement mixer."

The Melber reference at column 16, lines 54-63 discloses the following, and only, process for preparing the material therein:

> The appropriate measure of resin is charged to a mixing vessel. While mixing, 3 parts by volume of the blend of composite microspheres and calcium carbonate are added gradually for each part by volume of the vinylester resin polymer. Mixing is continued until a substantially uniform blend of the materials is observed. A free radical catalyst curing system for the vinylester resin polymer is added slowly while the mixing is continued until the catalyst is also uniformly mixed throughout the mixture.

The Melber disclosure of mixing the resin and additives "until a substantially uniform blend" is obtained, than adding catalyst and mixing again until "the catalyst is also uniformly mixed throughout the mixture" does not appear to teach or suggest Applicant's claimed "lightly mixing" feature. Pending claims 10-12 are not obvious over

the Melber and Alford references, singly or combined, and are patentable for at least this reason.

The rejection of claims 1-5 and 10-12 under 35 U.S.C. §103(a).

Claims 1-5 and 10-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,281,633 to Okuno et al in view of U.S. Patent No. 3,230,184 to Alford et al. More particularly, the Office communication asserts: It would have been obvious . . . to incorporate microspheres into thermoset compositions in order to obtain a lightweight stone product. One of ordinary skill in the art would have used effective amounts of known colorants and fillers in order to obtain the appearance of various types and colors of natural stone"

- **The Office communication admits that claims 10-12 are patentably distinct from the Okuno reference.**

Pending claim 10 recites in one pertinent part: "adding a curing agent to a thermoset resin to form a catalyzed resin mixture; . . .slowly mixing the microspheres and the catalyzed resin mixture to form a catalyzed base material . . .; adding at least one additive to the catalyzed base material; . . ." Claim 10 requires the additives to be added after the catalyst.

The present Office communication on page 2 admits that "adding the catalyst after mixing the other additives to the resin constitutes 'another and materially different process'". The present Office communication goes on to admit that adding catalyst to the resin after the additives "represents a process which is patentably distinguishable from the claimed process steps."

The Okuno reference at column 3, lines 18-31 discloses the following, and only, process for preparing the material therein:

> Mixing of (1) glass fiber, (2) 4-methyl-2,4-diphenylpentene-1, and (3) a transparent filler into the unsaturated polyester resin is performed, for example, by adding during preparation of the unsaturated polyester molding compound by kneader, cowles high shear mixer or planetary

> mixer.
>
> The amount of the resinous component in the unsaturated polyester molding compound is about 15% by weight to about 90% by weight.
>
> The unsaturated polyester molding compound described above may contain if necessary, cross-linked polystyrene, fillers other than those described above, internal mold release agents, catalysts, reinforcements, curing modifiers, pigments, etc.

The Okuno reference arguably teaches that glass fiber, 4-methyl-2,4-diphenylpentene-1, and a transparent filler are mixed into the unsaturated polyester resin to form a "unsaturated polyester molding compound". Any catalyst is arguably added (after the additives) to this "unsaturated polyester molding compound". Alternatively, it might be argued that Okuno teaches mixing catalyst with the unsaturated polyester resin at the same time as the glass fiber, 4-methyl-2,4-diphenylpentene-1, and a transparent filler. However, there is no teaching or suggestion that the catalyst is mixed with the unsaturated resin prior to mixing of additives with the unsaturated polyester resin.

The Office communication admits that adding catalyst before additives (as in pending claim 10) is a "materially different process" that is "patentably distinguishable" from adding catalyst after additives (as arguably present in the cited Okuno reference). Pending claim 10, and claims dependent therefrom, are not obvious over the Okuno reference and are patentable for at least this reason.

- **The proposed combination of Okuno in view of Alford does not teach or suggest all of the claim features.**

  - **The cited Okuno and Alford references do not teach or suggest non-homogeneous distribution of the additives.**

As filed claim 10 requires that "the additive is non-homogeneously distributed [in the catalyzed artificial stone mixture]." Amended claim 1 requires that the at least one member be non-homogeneously distributed in the resin.

The Okuno reference at column 3, lines 18-31 discloses the following, and only, process for preparing the material therein:

> Mixing of (1) glass fiber, (2) 4-methyl-2,4-diphenylpentene-1, and (3) a transparent filler into the unsaturated polyester resin is performed, for example, by adding during preparation of the unsaturated polyester molding compound by kneader, cowles high shear mixer or planetary mixer.
>
> The amount of the resinous component in the unsaturated polyester molding compound is about 15% by weight to about 90% by weight.
>
> The unsaturated polyester molding compound described above may contain if necessary, cross-linked polystyrene, fillers other than those described above, internal mold release agents, catalysts, reinforcements, curing modifiers, pigments, etc.

It does not appear reasonably possible to mix the resin and additives (glass fiber, transparent filler, etc.) as disclosed in Okuno (using equipment such as a kneader, cowles high shear mixer or planetary mixer) and still obtain a product that has additives non-homogeneously distributed in the catalyzed resin. If the Examiner continues to apply the Okuno reference Applicant respectfully asks for an explanation of how non-homogeneously distributed additives can be obtained given the cited Okuno disclosure.

The Alford reference does not teach or suggest manufacture of artificial stone products or additives for use in making artificial stone products. The Alford reference is directed to manufacture and use of glass microspheres in resin compositions which are useful in aerodynamics applications. See column 1, lines 29-33. In the Alford reference "the hollow glass spheres replace all or part of the bulk fillers conventionally employed." See column 6, lines 63-65. Examples 1-7 are stated to show the improvements in cured product properties achieved by replacing bulk fillers with hollow glass microspheres. The Alford reference does NOT teach or suggest that any of the materials are non-homogeneously distributed in the resin. In fact, the Alford reference is directed to improvement of cured product properties. Properties of the cured product will be detrimentally influenced by non-homogeneous distributions of materials within the resin matrix. Logically, the Alford reference must homogeneously distribute all of the materials in the resin matrix to achieve the asserted superior properties throughout

that matrix. The Alford reference does not teach or suggest non-homogeneously distributing materials within the resin matrix.

Claims 1-5 and 10-12 are not obvious over the Okuno and Alford references, singly or combined, and are patentable for at least this reason.

- **The cited Okuno and Alford references do not teach or suggest articles with a natural stone appearance.**

Amended claim 1 requires the artificial stone product to have an appearance characteristic of natural stone. Amended claim 10 requires that the artificial stone material closely approximate the look of natural stone. As is well known, natural stones are not transparent.

The Okuno reference is directed to a molding compound that can give "transparent" articles. See the abstract; column 1, lines 8-10 (This invention relates to molding compounds for production of transparent artificial marble molded articles and the articles thereof.); column 4, lines 20-21 (This process produces transparent artificial marble-like articles.); column 4, lines 22-24 (It is possible to mold glossy, transparent, thick, profile articles from the compounds of this invention, without cracking even at high temperatures.); claim 1 (An unsaturated polyester molding compound for production of a transparent artificial marble molded article . . .); and claim 4 (A transparent marble article . . .). Natural stone is not transparent. The Okuno reference does not teach or suggest an article having a natural stone appearance. The Alford reference does not teach or suggest manufacture of artificial stone products or additives for use in making artificial stone products.

Claims 1-5 and 10-12 are not obvious over the Okuno and Alford references, singly or combined, and are patentable for at least this reason.

- **Claims 5 and 10-12 are patentable for additional reasons.**

The Office communication on page 4 asserts (with original emphasis removed and new bolding added):

> Regarding claims 5 and 10, the viscosity of the catalyzed base material is a product-by-process limitation and is not further limiting in as so far as the structure of the product is concerned. '[E]even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. **If the product in a product-by-process claim is the same** or obvious from **a product of the prior art**, the claim is unpatentable even though the prior product was made by a different process.

As discussed above the Okuno and Alford references do not teach or suggest non-homogeneous distribution of additives. Thus, the claimed product is NOT the product of the cited prior art.

As discussed above pending claim 10 (which adds catalyst before additives) is admitted by the Office communication to be a "materially different process" that is "patentably distinguishable" from the prior art process (adding catalyst after additives). Thus, the claimed product is NOT the product of the cited prior art.

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- **Claims 10-12 are patentable for additional reasons.**

Claim 10 recites in one pertinent part: "lightly mixing the additive and catalyzed base material to form a catalyzed artificial stone mixture . . ." Applicant's specification discusses the meaning of "lightly mixing" at page 6, lines 10-31. That section explicitly states: "This working or mixing step is surprisingly important . . . To this end, it is important that the additives are not smeared or homogenized completely into the catalyzed base mixture. For this reason, an acceptable natural stone product cannot be achieved if the base material and additives are mixed using conventional methods such as stirring, shaking, paddle mixer, rotary mixer or cement mixer."

The Okuno reference at column 3, lines 18-23 discloses the following, and only, process for preparing the material therein:

> Mixing of (1) glass fiber, (2) 4-methyl-2,4-diphenylpentene-1, and (3) a transparent filler into the unsaturated polyester resin is performed, for example, by adding during preparation of the unsaturated polyester molding compound by kneader, cowles high shear mixer or planetary mixer.

Use of the "kneader, cowles high shear mixer or planetary mixer" as disclosed in the Okuno reference to completely homogenize the final catalyzed mixture is contrary to Applicant's claimed light mixing. Pending claims 10-12 are not obvious over the Okuno and Alford references, singly or combined, and are patentable for at least this reason.

- **The proposed modification of the Okuno reference makes it unsuitable for its intended purpose.**

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. See MPEP 2143.01, Rev. 2 May 2004, pp. 2100-131.

Amended claim 1 requires the artificial stone product to have an appearance characteristic of natural stone. Amended claim 10 requires that the artificial stone material closely approximate the look of natural stone. Natural stone is not transparent.

The Okuno reference is directed to a molding compound that can give "transparent" articles. See the abstract; column 1, lines 8-10 (This invention relates to molding compounds for production of transparent artificial marble molded articles and the articles thereof.); column 4, lines 20-21 (This process produces transparent artificial marble-like articles.); column 4, lines 22-24 (It is possible to mold glossy, transparent, thick, profile articles from the compounds of this invention, without cracking even at high temperatures.); claim 1 (An unsaturated polyester molding compound for production of a transparent artificial marble molded article . . .); and claim 4 (A transparent marble article . . .).

Modifying the Okuno material as suggested by the Office communication at page 5 ("One of ordinary skill in the art would have used effective amounts of known colorants and fillers in order to obtain the appearance of various types and colors of

natural stone.") would eliminate transparency in the modified material, thereby making the modified material unsuited for its intended use as a transparent molding material. Claims 1-5 and 10-12 are not obvious over the Okuno and Alford references, singly or combined, and are patentable for at least this reason.

- **The cited Okuno and Alford references teach away from the claimed invention.**

A reference that teaches away from a claimed invention does not provide the suggestion or motivation needed to anticipate or make obvious a claimed invention. In fact, the courts have stated that a reference that teaches away from a claimed invention is an indication of the nonobviousness of that invention. "A reference, however, must have been considered for all it taught, disclosures that diverged and taught away from the invention at hand as well as disclosures that pointed towards and taught the invention at hand." Ashland Oil, Inc. v. Delta resins & Refractories, Inc., 227 USPQ 657, 666 (Fed. Cir. 1985). "One important indicium of nonobviousness is 'teaching away' from the claimed invention by the prior art." In re Braat, 16 USPQ2d 1813, 1814 (Fed. Cir. 1990). The prior art reference must be considered in its entirety, including portions that would lead away from the claimed invention. See MPEP 2141.02. A "reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the Applicant." Winner v. Wang, 202 F.3d 1340 (Fed Cir. 2000) citing Gurley at 553.

Amended claim 1 requires the artificial stone product to have an appearance characteristic of natural stone. Amended claim 10 requires that the artificial stone material closely approximate the look of natural stone. Natural stone is not transparent.

The Okuno reference is directed to a molding compound that can give "transparent" articles. See the abstract; column 1, lines 8-10 (This invention relates to molding compounds for production of transparent artificial marble molded articles and the articles thereof.); column 4, lines 20-21 (This process produces transparent artificial marble-like articles.); column 4, lines 22-24 (It is possible to mold glossy, transparent,

thick, profile articles from the compounds of this invention, without cracking even at high temperatures.); claim 1 (An unsaturated polyester molding compound for production of a transparent artificial marble molded article . . .); and claim 4 (A transparent marble article . . .).

The Okuno reference teaches a transparent material and away from making an opaque material having an appearance of natural stone. The Alford reference does not teach or suggest manufacture of artificial stone products or additives for use in making artificial stone products. Claims 1-5 and 10-12 are not obvious over the Okuno and Alford references, singly or combined, and are patentable for at least this reason.

In summary, Applicant has addressed each of the objections and rejections within the present Office Action. It is believed the application now stands in condition for allowance, and prompt favorable action thereon is respectfully solicited.

The Examiner is invited to telephone Applicant's attorney if it is deemed that a telephone conversation will hasten prosecution of this application.

Respectfully submitted,

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